

Topic: Matter and energy transformations



Project 2061 Instructional Analysis of Biology Textbooks

Instructional Categories

| | Biology Miller · Levine Prentice Hall | Biology: A Community Context South-Western Educational Publishing | Biology: Principles & Explorations Holt, Rinehart and Winston | Biology: The Dynamics of Life Glencoe, McGraw-Hill | Biology: Visualizing Life Holt, Rinehart and Winston | BSCS Biology: A Human Approach Kendall Hunt | BSCS Biology: An Ecological Approach Kendall Hunt | Heath Biology D.C. Heath and Company | Insights in Biology Kendall Hunt | Modern Biology Holt, Rinehart and Winston |
|--|---|---|---|--|--|---|---|--|--|---|
|--|---|---|---|--|--|---|---|--|--|---|

I. PROVIDING A SENSE OF PURPOSE

| | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|
| Conveying unit purpose | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Conveying lesson purpose | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Justifying lesson sequence | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

II. TAKING ACCOUNT OF STUDENT IDEAS

| | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|
| Attending to prerequisite knowledge and skills | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Alerting teacher to commonly held student ideas | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Assisting teacher in identifying own students' ideas | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Addressing commonly held ideas | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

III. ENGAGING STUDENTS WITH RELEVANT PHENOMENA

| | | | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|
| Providing variety of phenomena | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Providing vivid experiences | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

IV. DEVELOPING AND USING SCIENTIFIC IDEAS

| | | | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|
| Introducing terms meaningfully | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Representing ideas effectively | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Demonstrating use of knowledge | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Providing practice | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

V. PROMOTING STUDENT THINKING ABOUT PHENOMENA, EXPERIENCES, AND KNOWLEDGE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Encouraging students to explain their ideas | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Guiding student interpretation and reasoning | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Encouraging students to reflect on their own learning | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

VI. ASSESSING PROGRESS

| | | | | | | | | | | |
|--|---|---|---|---|---|---|---|-----|---|---|
| Aligning assessment to goals | ■ | ■ | ■ | ■ | ■ | ■ | ■ | N/A | ■ | ■ |
| Testing for understanding | ■ | ■ | ■ | ■ | ■ | ■ | ■ | N/A | ■ | ■ |
| Using assessment to inform instruction | ■ | ■ | ■ | ■ | ■ | ■ | ■ | N/A | ■ | ■ |

■ = Excellent (3); ■ = Good (2.5-2.9); ■ = Satisfactory (2-2.4); ■ = Fair (1.5-1.9); ■ = Poor (0-1.4)